

**NEO RHIO and OneCommunity HealthNet Partnership  
FCC Rural Health Care Pilot Program**

areas of electronic medical records, disaster recovery and public health reporting using OneCommunity as a resource and possible partner.

**VII. The NEO RHIO Now and in the Future**

OneCommunity and NEO RHIO HealthNet Initiative is committed to using technology and materials that meet and exceed the unique requirements of HIE and telemedicine. NEO RHIO is in a position to leverage its resources to be a model for the national health information network the Department of Health and Human Services predicts could save the United States \$140 billion per year.<sup>2</sup>

Another compelling reason for implementing the network to rural sites is to help reticent medical professionals with administrative costs. NEO RHIO will assist medical professionals increase efficiencies offered through the implementation of technology. A recent study by the Center for Studying Health System Change showed physicians' net incomes from their medical practices declined about 7% on average from 1995 to 2003.<sup>3</sup> That trend may have heightened the reluctance of some professionals to install telemedicine services. In 2006, the Bush administration charged that every patient in the country should have an electronic health record by the year 2014. While technology is already entrenched in most care providers' offices and medical systems, the lack of connectivity between software, hardware and the Internet inhibits its effectiveness. As a result, 90 percent of all medical transactions are still paper. According to Mark Ansboury, principal of the NEO RHIO Health Initiative, the network has the potential to reduce telecommunication costs 40 to 60% by the year 2014 while it also takes away the ceiling for the application and use of broadband capacity.

***A. OneCommunity HealthNet connected twenty-eight (28) urban hospitals in past 12 months with no related public funding***

Should funds for this FCC proposal be awarded, NEO RHIO will be extending services for its ten (10) founding medical partners, representing thirty-two (32) facilities. This will insure a structure for interoperability. OneCommunity's network now located in urban settings and surrounding rural areas, enables different systems to work together.

OneCommunity has developed a collaborative network model that leverages common carriers, cable companies and third party provider networks to create a truly interoperable and consistent quality of service that crosses all the networks that will enable the NEO RHIO (HIE) partners to develop a standard of care between the rural and urban healthcare communities. The HealthNet model already exists with the 28 connected urban healthcare connections.

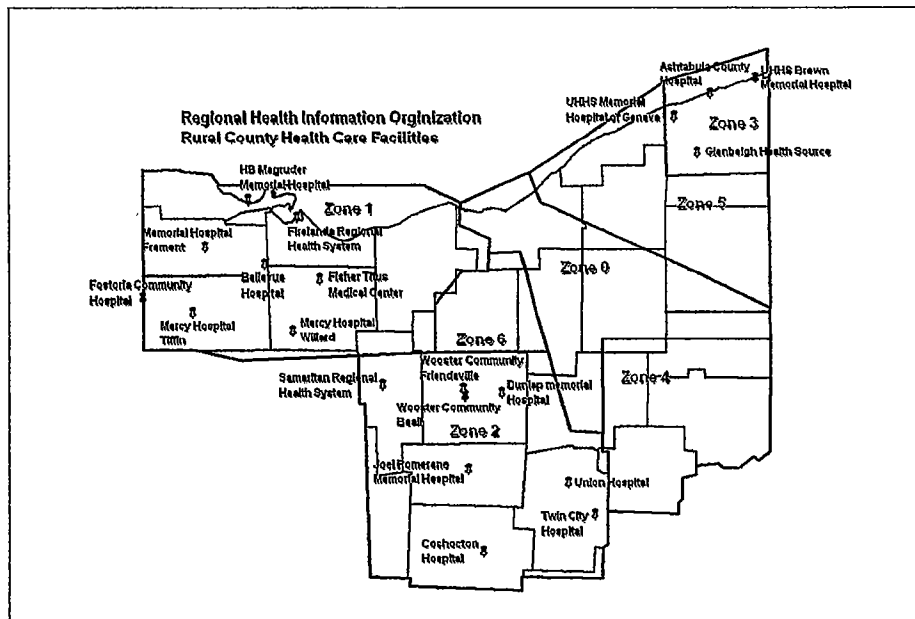
In general, rural populations are at higher risk than their urban counterparts for many chronic diseases, especially diabetes.<sup>4</sup> one of the factors that shapes the care continuum is the rural-urban interdependencies for healthcare. This is especially true in Northeastern Ohio where many individuals need to travel limited but complicated distances to seek out both primary care because of resource shortages and tertiary care. There are far reaching

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consequences of a "poor health community" A healthy population is essential for the socioeconomic success of the Northeastern Ohio another rural, underserved regions in the United States.

Representing nearly 20 percent of the U.S. population, rural communities, like their urban counterparts, are witnessing change in the provision of healthcare services. However, these smaller, poorer and geographically-isolated communities experience significant challenges in providing viable and high-quality healthcare services. The implementation of a health information technology (HIT) infrastructure will assist the rural community in building healthcare partnerships and resources.<sup>2</sup>

The OneCommunity NEO RHIO HealthNet includes router systems, managed video conferencing and other products that drive efficiencies. The nonprofit, information-technology service now connects public and nonprofit institutions - including health-care facilities to fast, fiber-optic networks in the Cleveland-Akron/Canton-Youngstown area; that connectivity and its benefits will easily be extended to rural care facilities and physicians. The proposed rural expansion will provide connectivity for nineteen (19) additional rural hospitals and cover twenty-two (22) counties in six regional zones. OneCommunity's NEO RHIO Health network will reach:



**Figure 1. HealthNet Regional Rural County Coverage**

*The proposed rural expansion will provide connectivity for twenty-one (21) additional rural hospitals and cover twenty-two (22) counties in six regional zones.*

**Zone 0** – Cuyahoga, Summit, Stark, Portage, Mid Mahoning

**Zone 1** – Lorain, Huron, Erie, Sandusky, Seneca

**Zone 2** – Ashland, Wayne, Western Stark, Holmes, Tuscarawas, Coscocton

**Zone 3** – Ashtabula

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**Zone 4** – Carrollton, Columbiana, Eastern Stark, south Mahoning.

**Zone 5** – Trumbull, Geauga, Lake.

**Zone 6** – Medina

For the past decade Northeast Ohio similar the other national trends has transitioned the healthcare provider landscape into an oligopoly. A number of our regions hospital systems throughout have developed various collaborative “arrangements” with other urban and rural hospitals that have traditionally been competitive. This healthcare system alignment has been brought on because of competition drivers to develop quality healthcare services. Recent grants from a number of organizations such as the Robert Woods Johnson grant for “Aligning Forces for Quality” and others have begun to align a significant portion of the care providers and ancillary services. Over the last two years OneCommunity, now supported through the NEO RHIO has through technology adoption, guided these hospital systems to think regionally and also collaboratively. The end result is that OneCommunity has focused health system “competitors” to contemplate using broadband technology to construct state- and region-wide broadband networks to provide telehealth and telemedicine services. This is a critical and dynamic shift in regional thinking and is central to the OneCommunity and NEO RHIO HealthNet approach.

Some key examples of success within our healthcare community include the;

- collaboration between MetroHealth, University Hospitals, and Cleveland Clinic and federally qualified healthcare partners to align the disease management for diabetes in an effort to align the quality in healthcare services across the region;
- collaboration between the Cleveland Clinic, OneCommunity and the Cleveland Municipal School District to provide broadband services to facilitate real-time interactive educational environment, advanced lab, research and intern opportunities to students as part of health, wellness and development of the next generation of healthcare workers and;
- formation of NEO RHIO to serve as a neutral third party for Health Information Exchange (HIE) between all the hospitals and healthcare providers in Northeast Ohio.

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**Table 3. Current hospitals, all nonprofits, connected to NEO RHIO HealthNet**

**OneCommunity HealthNet Connections(28)**

Akron Children's Hospital - Main Hospital  
Akron Children's Hospital - St. Elizabeth Hospital - Youngstown, Ohio  
Akron Children's Hospital Boardman - Youngstown, Ohio  
Akron Children's Hospital Ashland - Ashland Ohio  
Cleveland Clinic – Main  
Cleveland Clinic - Secondary/BTI  
Mercy Medical Center - Carroll County Health Center  
Mercy Medical Center - Jackson Health Center  
Mercy Medical Center - Mercy Health Center  
Mercy Medical Center - Professional Care  
Mercy Medical Center - Professional Medical Equipment  
MetroHealth Systems - Cedar Avenue Service Center  
MetroHealth Systems – South Campus  
Parma Community Hospital Site#1 Main  
Parma Community Hospital Site#2 WellPointe  
Sisters of Charity St. Augustine - St. Vincent Charity Hospital  
Southwest General Hospital Site#1  
Southwest General Hospital Site#2 Strongsville  
Southwest General Hospital Site#3 Pearl Road  
St. John Westshore Family Medicine Center (N. Olmsted)  
St. John Westshore Hospital  
University Hospital Health Systems - Heather Hill  
University Hospital Health Systems - Main  
West Shore Primary Care Associates - Avon - Hale Rd.  
West Shore Primary Care Associates - Avon Lake  
West Shore Primary Care Associates - North Ridgeville  
West Shore Primary Care Associates - Sheffield Village  
West Shore Primary Care Associates - Westlake

**Table 4. Current NEO RHIO System Partners**

<b>NEO RHIO Member Institutions</b>		
<b>Hospital or System (IDN)</b>	<b>Location</b>	<b>County</b>
<b>Medina General Medical Center</b>	Akron	Summit
<b>Akron Children's Hospital</b>	Akron	Summit
<b>Summa Health System</b>	Akron	Summit
<b>UHHS/CSAHS</b>	Cleveland/Canton	Cuyahoga and Stark
<b>University Hospitals of Cleveland</b>	Cleveland	Cuyahoga and Regional
<b>Cleveland Clinic Foundation</b>	Cleveland	Cuyahoga and Regional
<b>MetroHealth Medical Center</b>	Cleveland	Cuyahoga
<b>Lake Hospital System</b>	Willoughby	Lake
<b>Aultman Hospital</b>	Canton	Stark
<b>Parma Community Hospital</b>	Parma	Cuyahoga
<b>Southwest Hospitals</b>	Strongsville	Cuyahoga

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**A. Extending the NEO RHIO to rural counties.**

OneCommunity proposes to extend its HealthNet to an additional nine (9) counties largely designated as rural communities. This expanded network will initially serve nineteen non-profit health care providers, two (2) of which are Federally Qualified Healthcare Providers serving the underserved community. However, HealthNet will serve as the framework for expansion of the health services at no cost to the FCC. NEO RHIO will continue to expand HIE/Telemedicine services throughout the region to individual care facilities, practitioners, healthcare homes, and underserved health centers.

**Table 5. Facilities slated for initial inclusion in the NEO RHIO**

*Counties, addresses, zip code, Rural Urban Commuting Area (RUCA) code, contact information and phone number for each health care facility participating in the network.*

System	County	Facility Name & Address	RUCA CODE	HPSA	Contact Names	Phone
	Ashland	<b>Samaritan Regional Health System</b> 1025 Center Street Ashland, OH 44805	4		Danny Boggs, CEO	419-289-0491
CCHS	Ashtabula	<b>Ashtabula County Medical Center</b> 2420 Lake Ave Ashtabula, OH 44004 Glenbeigh 2420 Lake Ave Ashtabula, OH 44004	2	HPSA	Kevin Miller, CEO & Jason Kopczak, CFO	440-997-6520 440-997-6221
			2	HPSA	Pat Weston-Hall	440-563-3400
UHHS	Ashtabula	<b>Conneaut Medical Center</b> 158 West Main Road Conneaut, OH 44030	2	HPSA	Rich Frenchie, CEO	440-593-1131
		<b>Geneva Medical Center</b> 870 West Main Street Geneva, OH 44041	4.2	HPSA	Rich Frenchie, CEO	440-593-1131
Mercy Health Partners	Huron	<b>Mercy Hospital – Willard</b> 10 East Howard St. Willard, Ohio 44890	4.2		Joe Glass	419- 251-8982
CHN & CC5	Erie	<b>Firelands Regional Medical Center</b> 1101 Decatur St. Sandusky, Ohio 44870	1		Chuck Stark, CEO Dan Moncher, CFO	419-557-7400 419- 557-7793
CHN & CC5	Huron	<b>Fisher Titus Medical Center</b> 272 Benedict Ave., Norwalk, OH 44857			Pat Martin, CEO Wendy Melching, CFO	419-668-8101 419- 663-1975
	Holmes MUA	<b>Joel Pomerene Memorial Hospital</b> 81 Wooster Road Millersburg, Ohio 44654	10.5	HPSA	Tony Snyder, CEO	419-557-7400
CC5	Ottawa	<b>H.B. Magruder Memorial Hospital</b> 615 Fulton Street, Port Clinton, OH 43452	4		Dave Norwyne, CEO	419- 557-7793

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System	County	Facility Name & Address	RUCA CODE	HPSA	Contact Names	Phone
CC5	Sandusky MUA	<b>Bellevue</b> 811 NW St. Bellevue, Ohio 44811	7.3	HPSA	Mike Winthrop, CEO Alan Ganci, CFO	419-557-7400 419- 557-7793
CC5		<b>Memorial (Fremont)</b> 715 S. Taft Ave Fremont, OH 43420	4.2	HPSA	Al Gorman, CEO Rick Ruppel, CFO	419-668-8101 419- 663-1975
	Seneca	<b>Fostoria Community</b> 501 Van Buren St. Fostoria, Oh 44830	4	HPSA	Tim Jakacki, CEO	419-435-7734
		<b>Mercy Hospital – Tiffin</b> 2355 Tiffen Avenue Findlay, OH 45840	4	HPSA	Joe Glass	419- 251-8982
	Tuscarawas MUA	<b>Twin City</b> 819 N. First Street Dennison, OH 44621	4	HPSA	Marge Jentes, CEO	740-922-2800
		<b>Union Hospital</b> 659 Boulevard Dover, OH 44622	4	HPSA	Bill Harding, CEO	330-343-3311
	Union	<b>Memorial Hospital of Union County</b> 500 London Avenue Marysville, OH 43040	2		Chip Hubbs, CEO Jeff Ehlers, CFO	937-644-6115 937-644-6115
	Wayne	<b>Dunlap Memorial</b> 832 South Main Street Orrville, OH 44667	7.4		Rod Steiger, Interim CEO	330-682-3010
		<b>Wooster Community</b> 1761 Beall Ave. Wooster, Ohio 44691	4		Bill Sheron, CEO	330-263-8100

**RUCA = Rural Urban Commuting Code  
MUA = County with Medically Underserved Areas  
HPSA = Health Professional Shortage Area**

**VIII. NEO RHIO's previous experience in developing and managing telemedicine programs.**

**A. *OneCommunity's and NEO RHIO's track record makes their Health Initiative a prime candidate for this FCC funding award.*** The Network model proposed for this Health Initiative leverages an existing grid that already connects literally hundreds of key entities in just a few years across various industries and including deep programming efforts that leverage the power of the network. The success of the existing OneCommunity and NEO RHIO network makes it a good "fit" for the creation of the rural connection strategy. Already OneCommunity has been globally recognized among researchers, vendors, and similar international concerns for its network capabilities in the public, health, and educational sectors. Following are some of its successes.

1. **Government.** OneCommunity has already improved constituent access to critical knowledge and services through Web-based information and interaction. By aggregating government bandwidth demand and related IT services, the nonprofit has

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reduced expenses. Another advantage to the OneCommunity network, which will serve as a base for NEO RHIO, is its role in increasing productivity of employees who work remotely. Using the OneCommunity Network, City of Cleveland building inspectors have been able file reports from the field using the secure wireless network. Some of the Northeast Ohio communities that have benefited from the use of the OneCommunity Network are the City of Cleveland, Cuyahoga County and Mayfield Village. Solutions of OneCommunity offered to these partner communities include an access to tax credits (Cleveland Housing Network) through an online application. More than \$3 million in tax credits were awarded to low-income residents through this program in 2006.

2. *Public Safety.* The OneCommunity partnership in the area of public safety complements the HealthNet Initiative's goals as medical partners also engage in public emergency response and health service activity throughout the Northeast Ohio region. OneCommunity and its vendor partners are developing opportunities to enable local law enforcement to rapidly access and search content from video surveillance cameras to improve response times and enhance public safety. All of the developments in the public service area allow OneCommunity and NEO RHIO to leverage similar cross-application features to the partners of the HealthNet Initiative.
3. *Education.* OneCommunity connected 117 Cleveland Public Schools to the community network. In addition, the nonprofit is currently in the process of developing additional broadband initiatives for the Cleveland Clinic Foundation, which delivers a broad range of educational programs to the K-12 students of our community, enhancing public student math and science education and workforce development. OneCommunity has also partnered with *ideastream* to extend the region's ability to deliver digital content and distance learning programs to the K-12 and Library networks of Northeast Ohio. These systems combine the collective strengths of technology, community involvement, vendor management, educational outreach, and teacher professional development, and they connect stakeholders throughout Northeast Ohio, profoundly affecting how children are educated. OneCommunity connects to over 300 schools and plans to connect over 1,500 schools in Northeast Ohio.
4. *Healthcare.* The broad-based stakeholders participating in NEO RHIO recognize the importance of using information technology to advance healthcare, enable innovation, develop new applications, and develop a system that is self-sustaining. The Northeast Ohio region has been faced with numerous economic challenges in recent years; focusing on the region's strength – healthcare – will not only improve residents' quality of life, but also support economic development. A simple example of using technology on a 7x24 nursing on-line service that can be accessed through the web or via on-line call in.

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NEO RHIO was conceived as a response to an Office of the National Coordinator for Health Information Technology Nationwide Health Information Network Request for Proposal (ONC NHIN RFP), released in September 2005. This effort brought together the CEOs and CIOs of several large hospitals in the Cleveland-Akron-Canton metropolitan area (Akron General Health System, Aultman Hospital, Children's Hospital Medical Center of Akron, Cleveland Clinic Foundation, Mercy Medical Center, MetroHealth, Summa Health System, and University Hospitals), along with multiple physician groups, pharmacies, and vendors, to discuss HIT and HIE for the region. Although the funding was not awarded, this collaboration has given rise to a network that has garnered statewide regional support, recognition among network engineering publications like Grid magazine and global awareness of its success in partnership efforts and digital collaboration.

### ***B. NEO RHIO is a broadband network already designed and implemented to meet FCC application requirements for telemedicine.***

*The superior architecture* of the OneCommunity Core Network is achieved by a three tiered approach to connectivity from the currently installed urban network to the new rural sites: (1) The network is made up of the highest quality, massive broadband capability using fiber optic cables. (2) Flexible connectivity and interoperability between sites and users is designed around a regional zone concept; and (3) Rural sites will be able to make multiple connections to central hubs within these zones, giving the network a local presence. This three-tiered, zone approach enables OneCommunity to leverage existing common carrier, cable and private provider networks to create a highly integrated and interoperable Health network that can also be used to support other community network needs such as education, workforce and economic development.

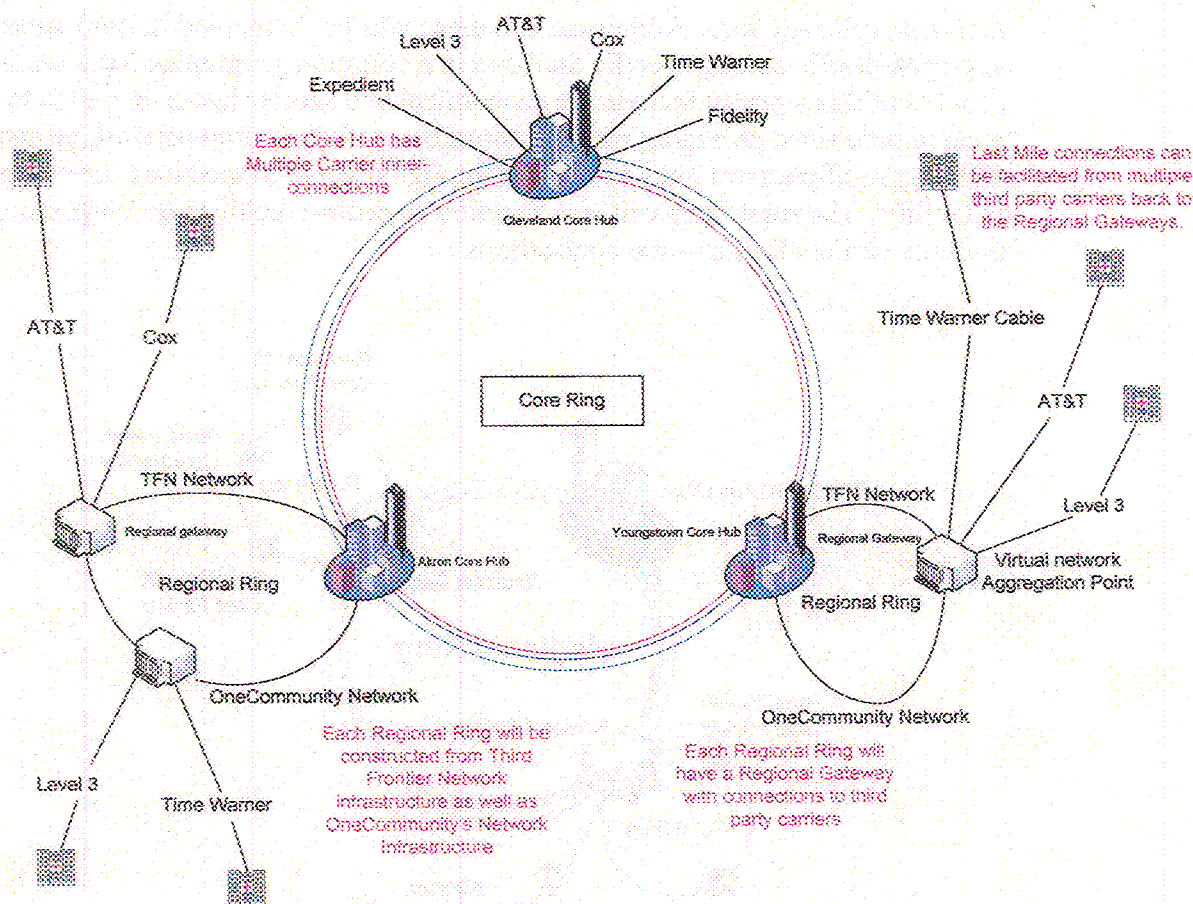
1. *Superior design and engineering.* The OneCommunity core network uses path protected Dense Wave Division Multiplexing (DWDM) architecture. This facilities-based design enables OneCommunity's network to interconnect to all the common carriers, cable companies, fiber, and wireless providers across the region and provides a consistent quality of service connection transparent of the individual last mile provider. This provides full diversity extending high capacity access to rural community health care providers and offers physicians and medical facilities the ability to move real-time data and to access metadata across there local access to the 6.4 terabit massive capacity broadband network supported by the OneCommunity NEO RHIO Health network.

As shown in the figure below, OneCommunity's design enables NEO RHIO and our healthcare community to have access to other facilities based services such as local and regional data centers for disaster recovery and offsite storage. The aggregation of multiple links inherent in the system increases network capacity to the rural health facilities enabling broadband health applications and the delivery of digital health



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images such as x-ray's, CT and MRIs, patient records, telemetry and real-time telemedicine consultation. In addition the aggregation lowers overall network costs enabling rural health care providers the ability to participate in the NEO RHIO Health Information Exchange (HIE).



**Figure 2 – OneCommunity Core Network**

2. *Regional Hubs Ensure Connectivity and Interoperability among zones.* Regional hubs provide numerous connectivity functions throughout the Northeast Ohio Region. First, they allow multiple rural areas to be aggregated into a protected network structure, and they permit each rural site to connect back to a single geographically close location. Second, the regional hub concept is to provide a connecting point for the rural networks to link back to NEO RHIO's core network. Third, the regional hub insures connectivity between rural sites, offering multiple paths for data to travel to and from multiple points throughout the network—the paths can be between regional hubs, from rural to regional and from rural to regional to another rural location.

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Strategically placing regional hubs also allow NEO RHIO numerous options to choose the best and most economical path to add additional hubs or connect new rural sites. Multiple hubs also serve as alternative connection paths for all sites in a network in the event of an individual path failure.

3. *Inclusion of Rural Sites.* Additional hub areas will be designated in rural areas to aggregate traffic among specific facilities in a common geographic location. Some benefits of this strategy include the economical and shorter last-mile builds to the most remote sites, providing rural communities with their own network presence, and allowing multiple rural hubs to connect through diverse connections for exceptional reliability. The rural hubs will also function as neutral facilities encompassing multiple carriers for last-mile applications.

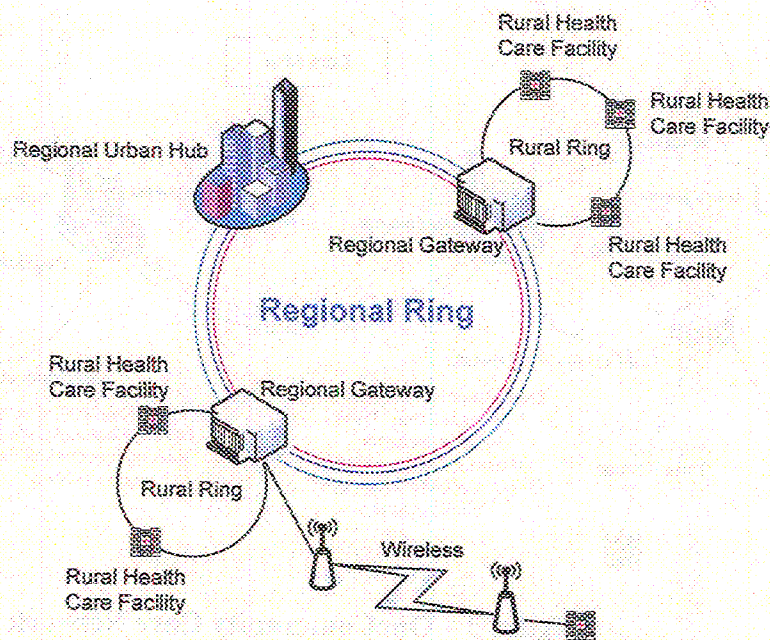
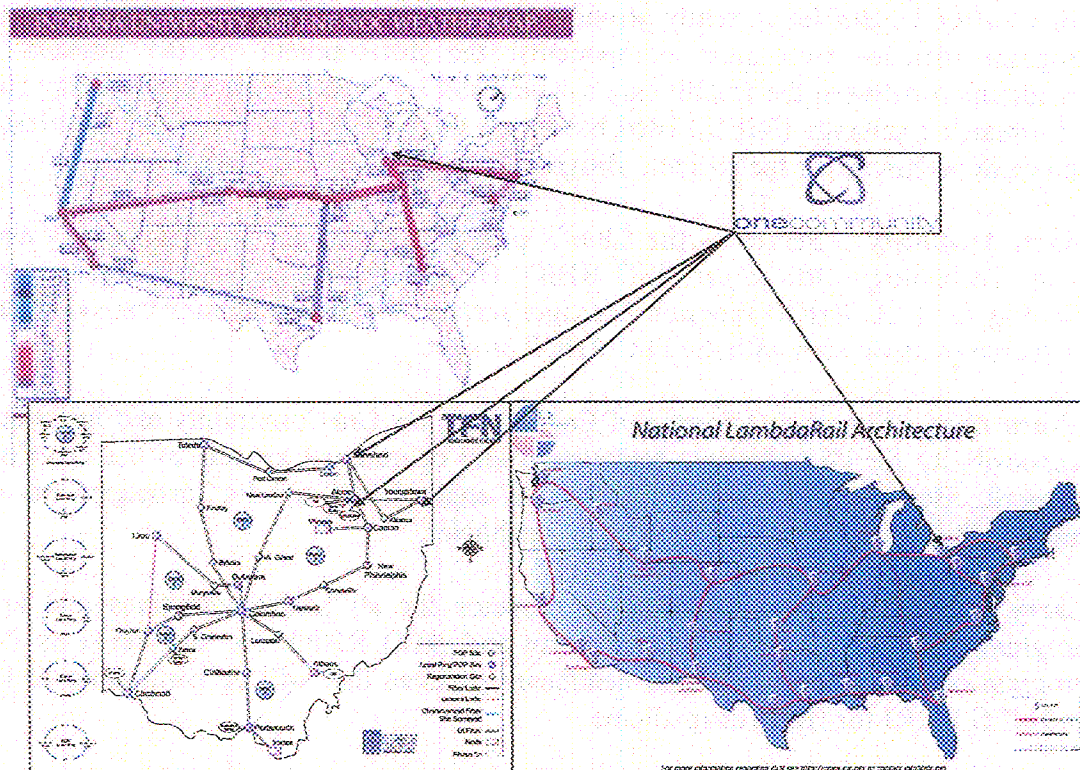


Figure 3. A close-up view of a regional ring.

4. *Regional Intranet provides on-ramp to local, state and national networks.* The OneCommunity NEO RHIO Health Network also provides physical connections to the State of Ohio's Broadband Network formally known as the Third Frontier Network (TFN), and have on-ramps to the National Lambda Rail (NLR) and Internet 2 (I2), and multiple state operators as well as various carriers and applications.



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**Figure 4. The U. S. – HealthNet Connection**

*OneCommunity proposes to partner with the FCC to connect our existing urban, state and national network connections to our new rural healthcare partners  
National Lambda Rail and Internet 2.*

**IX. Project Management, Deployment, Timelines, Personnel Roles, and Budget**

The management team of OneCommunity NEO RHIO HealthNet is an experienced mix of business, technical and medical personnel. In their efforts to create a network that facilitates connectivity throughout the state, they have strategically leveraged their knowledge and partnered their efforts with the appropriate organizations. OneCommunity will be providing their experience and expertise in constructing the network architecture and infrastructure that will bring Northeast Ohio to the forefront for high speed connectivity. The HealthNet network will enable not only health care facilities in northeast Ohio, but also bring the communities together for a better symbiotic network infrastructure and enable cohesion throughout the Northeast Ohio region.

**A. HealthNet Organization and Personnel Roles**

OneCommunity and NEO RHIO have developed a proven management with a track record of successfully implement large scale local, regional and national projects. The team identified for the RHCP project includes the executive management of OneCommunity and

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NEO RHIO. HealthNet currently provides connectivity to 28 Northeast Ohio Hospitals. The program includes two main components: the development of the network and the coordination between the Health care systems and NEO RHIO for Telemedicine and Health Information Exchange (HIE). Listed below are the FCC RHCP Program Organization chart and chief personnel for the project. Biographies are included in Appendix D.

**Mark Ansboury** – Serves as the Chief Operating Officer for OneCommunity and Acting Chief Technology Officer for NEO RHIO. He will have full program accountability and serve as the FCC RHCP Program Manager responsible for all administrative, financial and partnerships associated with the FCC RHCP project.

**Chuck Girt** – Serves as Director of Engineering for OneCommunity and has management responsibility for all technical, deployment and operational aspects of the OneCommunity network. He will be responsible for all engineering, vendor management and field engineering related to the deployment of HealthNet.

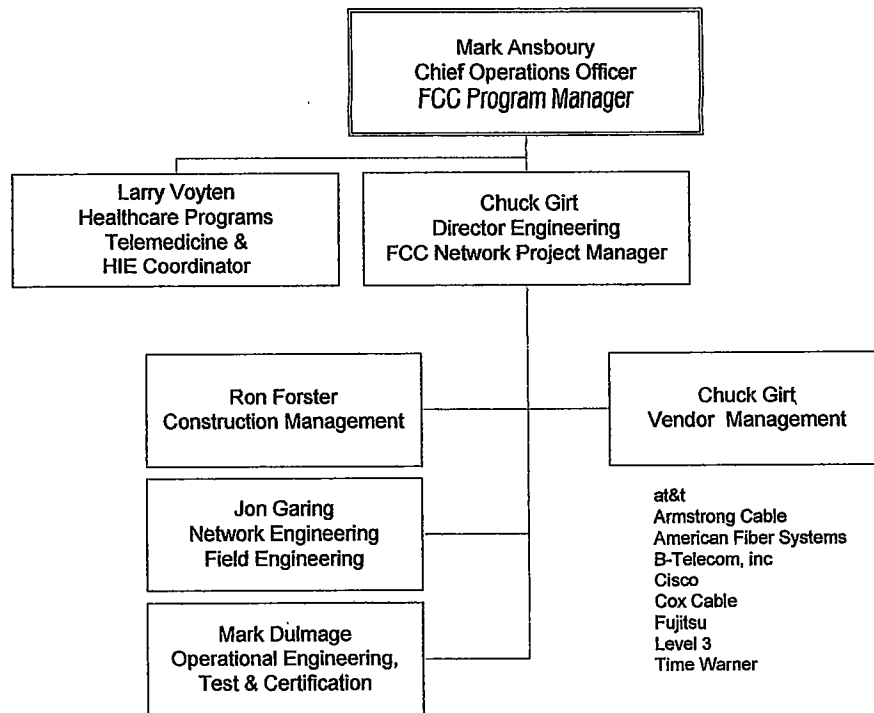
**Larry Voyten** – Serves as Program Director for all health initiatives and application programs associated with OneCommunity and NEO RHIO. He will serve as liason and program coordinator for the rural healthcare partners that will be connecting to HealthNet and NEO RHIO for HIE/Telemedicine.

**Ron Forster** – Serves as outside plant project manager for OneCommunity and is responsible for fiber plant, facilities and site preparation; He will serve as the Construction Manager for the FCC RHCP outside plant deployment.

**Jonathan M. Gairing** – Serves as field engineer, equipment installer and provides configuration support along with supporting field maintenance and repair services. He will manage the site and equipment installation and initial configuration for the HealthNet network.

**Mark Dulma** – Serves as OneCommunity's operational support, test and certification engineer in addition to providing field engineering, installation and maintenance support. He will support the site and equipment installation and initial configuration for the HealthNet network and conduct field site and operational testing and certification.

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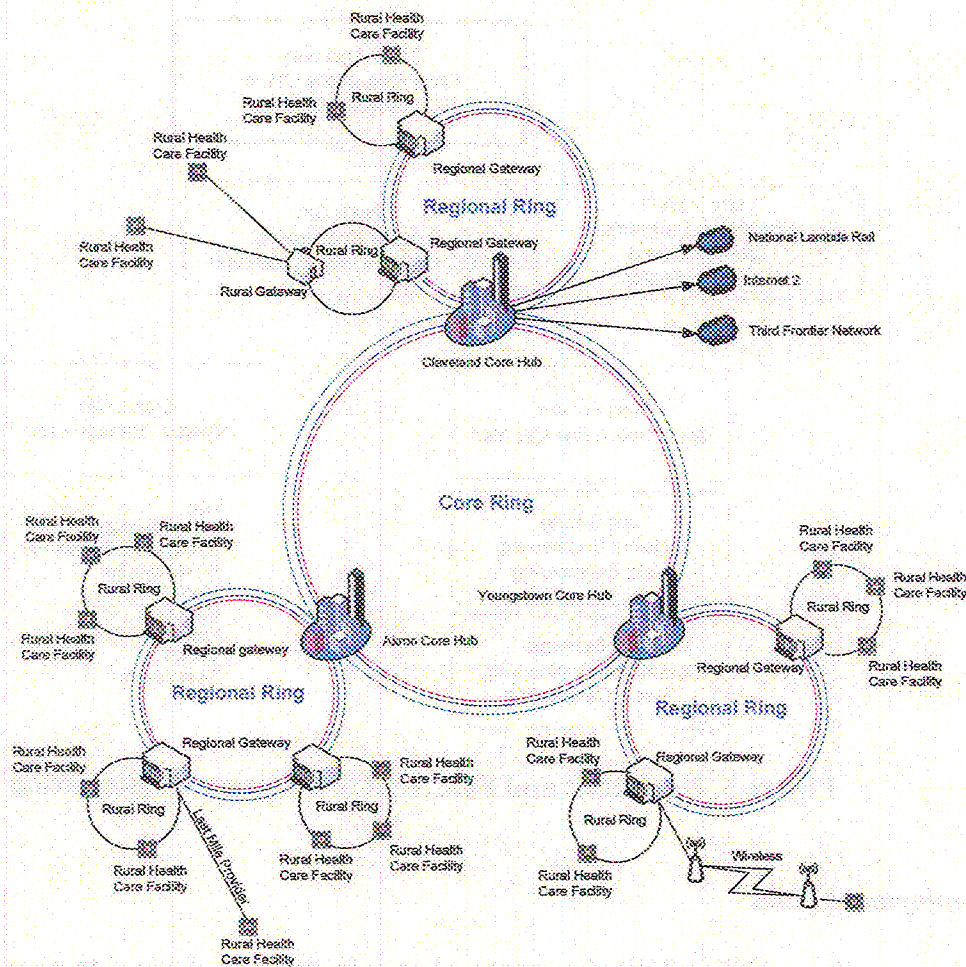
**Figure 5. HealthNet and FCC RHCP Program Organization**

***C. Deployment Plan.***

OneCommunity and NEO RHIO have created an infrastructure devised to provide connectivity to health care facilities using a common infrastructure to reduce the costs of individual high speed connections and to provide transport to areas that are devoid of high speed connectivity. The overall goal of the HealthNet infrastructure is to construct a diverse, high availability network to meet the needs of the health care community as well as the communities themselves.

The proposed design focuses on fiber infrastructure and includes the ability to incorporate wireless technology. Option 1 provided in the main body of the proposal includes 90% fiber based infrastructure connecting the 19 core rural healthcare facilities via fiber. Option 2 in Appendix B Budget Information includes a change in the design to incorporate alternative wireless connectivity. Option 2 is based on 50% core fiber and 50% wireless connectivity. The proposed wireless connections will deliver 100 Mbps services.

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**Figure 6. HealthNet Architecture**

HealthNet, Figure 7, as designed by OneCommunity will have three layers to its network infrastructure. The Primary or 'Core' layer as it will be referred too, has a series of Core hubs, which are located in Cleveland, Akron, Canton, and Youngstown. This core infrastructure is built on a DWDM platform with a MPLS core for Ethernet connectivity. This design of Core network will have the ability to pass 6.4 terabits of data throughput. The second layer in the RHIO network is the 'Regional Gateways'. Regional gateways are the connection or 'gateway' from the rural and urban areas back to the core of the network. This layer is also built on a DWDM infrastructure with MPLS for Ethernet connectivity. Every regional gateway will have an MPLS master node as well as access devices for customer interfaces. Each Regional gateway will have 80 gigabit to 6.4 terabits of data throughput. The third layer in this network is the rural fiber rings and 'Rural Gateways'. Fiber infrastructure will be constructed in the rural areas that will be connected back to the strategically located Regional Gateways. If needed, 'Rural Gateways' will be placed in strategic areas to aggregate traffic back through the rural fiber infrastructure. The rural hubs will connect back to the regional gateways using a combination of CWDM and DWDM technologies. Each